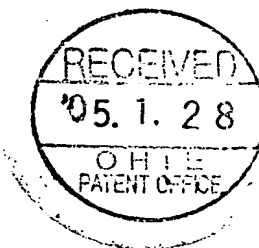


PATENT COOPERATION TREATY



From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2004/014419

International filing date (day/month/year)
24.09.2004

Priority date (day/month/year)
25.09.2003

International Patent Classification (IPC) or both national classification and IPC
C01B33/107, B01D53/22, H01L31/20, H01L21/205, C03B37/00, G01N30/14

Applicant
SHOWA DENKO K.K.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1 (a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2004/014419

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2004/014419

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. ☐ It has not been possible to consider the validity of the priority claim because a copy of the priority document was not available to the ISA at the time that the search was conducted (Rule 17.1). This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

4. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-14
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-14
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

Reference is made to the following document/s/:

D1:US5145507

D2:WO 00/76915

D3: EP0129112

D4: WO 03/006374

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-14 does not involve an inventive step in the sense of Article 33(3) PCT.

claims 12-14.

Present claims 12-14 relate to gases for the production of either optical fibers, semiconductors or solar cells. The said gas contains the SiF₄ obtained according to any of present claims 1-11.

The uses of this kind of gases is known from for instance D4 (see claims 23-25)

Moreover, since the SiF₄ obtained according to any of claims 1-11 cannot be distinguished from the SiF₄ known in the prior art, this feature of present claims 12-14 is not a differentiating figure.

Moreover, it can be seen from D1 (see for instance fig1, col 3 lines 44-46) that it is quite common to use gases comprising SiF₄, together with additives (at a level to be determined by the intended use), such as boron, a transition metal, and phosphorous, to produce glasses, optical fibers, semiconductors (See D2 p3 line19- 23) or solar cells.

Consequently, present claims 12-14 lack an inventive step.

claims 8-11

In view of D2 (WO 00/76915), it can be seen that the purification step of present claim 8 lies within the skilled practitioner knowing D3, in particular p2 l10-11,19, p5 l26, p6 l16-19, p17 l17-19 claims 2, 13 as well as D4 p14 l14-p17 l32. Consequently, claims 8-11 lack an inventive step.

claims 1-7

The step of decomposing H_2SiF_6 with H_2SO_4 is known from D3 (EP0129112, see claims 1); nevertheless, the process of present claim one, as a whole, is not disclosed by any of the prior art cited. Consequently, claims 1-8 are novel.

Nevertheless it is felt, that claim 1 lacks an inventive step as it seems to lie within the reach of a skilled practitioner knowing the said prior art.

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1, D3-D4 is not mentioned in the description, nor are these documents identified therein.